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A convergence of an implicit difference scheme for the saturated-unsaturated filtration consolidation problem

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Abstract

An implicit difference scheme for the problem of saturated-unsaturated filtration consolidation is considered and analyzed under the condition when a part of the boundary is semi-permeable. The penalty method is applied to establish the existence of a solution to the difference problem. The convergence of the difference scheme is studied under minimal assumptions on the smoothness of the original data: the convergence of the piecewise-constant extensions of the difference solution to the generalized solution of the problem is proved. © 2013 Pleiades Publishing, Ltd.

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Keywords

convergence of a difference scheme, difference schemes, filtration consolidation, penalty method